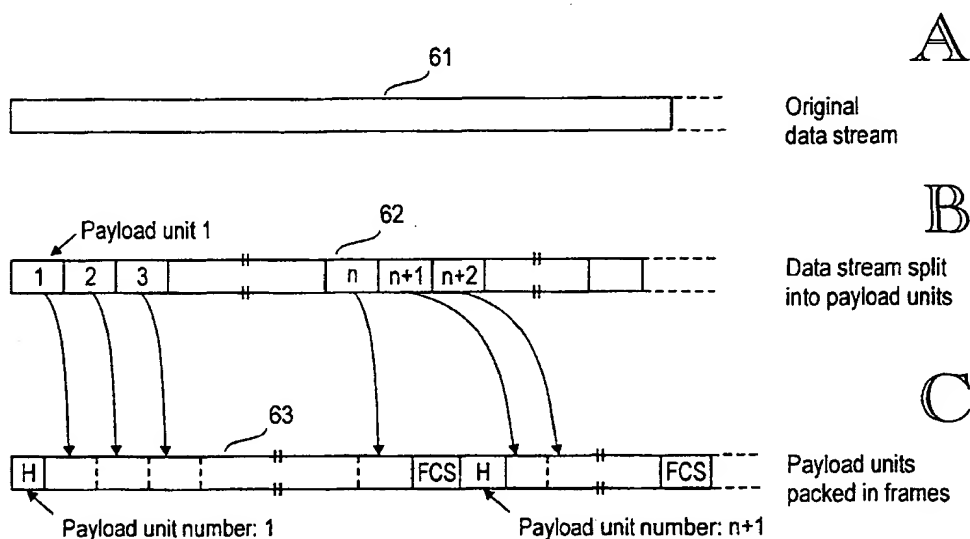




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04L 1/18, H04Q 7/22		A3	(11) International Publication Number: WO 99/63703
			(43) International Publication Date: 9 December 1999 (09.12.99)
(21) International Application Number: PCT/FI99/00477 (22) International Filing Date: 1 June 1999 (01.06.99) (30) Priority Data: 981261 3 June 1998 (03.06.98) FI 981441 23 June 1998 (23.06.98) FI (71) Applicant (for all designated States except US): <u>NOKIA NETWORKS OY [FI/FI]</u> ; Keilalahdentie 4, FIN-02150 Espoo (FI). (72) Inventors; and (75) Inventors/Applicants (for US only): <u>BERGENWALL</u> , Martin [FI/FI]; Heinjoenpolku 3 A 6, FIN-02140 Espoo (FI). <u>RINNE</u> , Mikko, J [FI/FI]; Tallbergin puistotie 1 C 25, FIN-00200 Helsinki (FI). <u>IMMONEN</u> , Jukka [FI/FI]; Vahverotie 5 L, FIN-02730 Espoo (FI). <u>OHVO</u> , Mikko [FI/FI]; Johanbergintie 102, FIN-04660 Numminen (FI). <u>RÄSÄNEN</u> , Juha [FI/FI]; Pensaskertuntie 8 A, FIN-02660 Espoo (FI). (74) Agent: KOLSTER OY AB; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> <i>In English translation (filed in Finnish).</i> (88) Date of publication of the international search report: 27 January 2000 (27.01.00)	

(54) Title: DATA TRANSMISSION METHODS IN A TELECOMMUNICATION SYSTEM



(57) Abstract

The invention relates to data transmission in telecommunication systems and particularly in radio systems. The invention employs "payload numbering" instead of or in addition to conventional frame numbering. Data (61) is split into fixed-length data blocks or payload units (62). The size of a block is preferably equal to or smaller than the shortest information field in frames (63) of the protocol(s) used. Each protocol frame carries one or more payload units. In an optimum situation the length of the information field in a protocol frame equals $n \times$ the length of the payload unit, where n is an integer. Instead of frame numbering (in some special cases possibly in addition to it) the protocol frame carries payload numbers both for indicating the payload units (data blocks) conveyed in the protocol frame and for acknowledging the received blocks.